

Application Number 09/858,185
Amendment dated April 16, 2004
Reply to Office Action of October 16, 2003

REMARKS

The paragraph at page 1 lines 4 through 7 of the specification has been amended to delete the reference to U.S. application serial number 09/001,887 and to update the status of U.S. application serial number 09/614,488. The paragraph at page 5 line 20 of the specification has been amended to update the status of U.S. application serial number 09/473,099.

With regard to the drawings, Figure 7A is amended herein to add reference numeral 841 to refer to an air exhaust valve in the accumulator. The specification is also amended at page 19 line 25 and at page 20 line 1 to add the reference numeral 841 to the specification.

A Transmittal of Substitute Formal and Informal Drawings is enclosed herewith. New formal drawing sheets of Figures 1 through 6 are substituted into the application for the originally filed informal drawings. In new formal Figure 6, the references to the various solenoid valves are clarified. A new informal drawing sheet for Figures 7A and 7B is included with the Transmittal. Figure 7A is informal because it includes a handwritten version of the correction to the drawing mentioned above. When the Examiner approves the amendment to Figure 7A, a new formal drawing sheet containing Figures 7A and 7B will be filed.

A Transmittal of Substitute Declarations is filed herewith. The substitute Declarations should replace the Declaration filed in the application on August 20, 2001. The substitute Declarations contain the signatures of all of the inventors and do not refer to U.S. application serial number 09/001,887. Acceptance of the substitute Declarations is requested.

With regard to the Information Disclosure Statements received by the Patent Office on September 9, 2002 and May 6, 2002, a copy of an International Search Report received in connection with a related international patent application under the PCT associated with the information cited in the Information Disclosure Statements is enclosed.

Claims 1 and 9 are rejected under 35 U.S.C. §102(b) as being anticipated by WO 00/74117 or Cowans (U.S. Patent Number 6,102,113). Claims 2, 3, 10 and 11 are rejected under 35 U.S.C. §103(a) as being unpatentable over the prior art as applied to claims 1 and 9, and further in view of Sherwood (U.S. Patent Number 6,148,634). Claims 4 and 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over the prior art as applied to claims 1 and 9, and further in view of JP 2000-183,142. Claims 5 through 8 and 13 through 16 are rejected under 35

U.S.C. §103(a) as being unpatentable over the prior art as applied to claims 1 and 9, and further in view of Fraser (U.S. Patent Number 5,015,337) and Anderson (H1145). In view of the amendments to the claims and the following remarks, the rejections are respectfully traversed, and reconsideration of the rejections is requested.

The applicants' invention is directed to a temperature control system for a workpiece chuck. A temperature control fluid is circulated through the workpiece chuck by a fluid circulation system. The fluid is recovered by a fluid recovery system. The fluid recovery system includes a gas inlet through which gas is forced into the fluid circulation system and circulated through the fluid circulation system to carry some of the recovered temperature control fluid through the fluid circulation system to a reservoir. The reservoir receives the gas and a first portion of the recovered temperature control fluid. As the recovered gas and first portion of the temperature control fluid enter the reservoir, gas and vapor of the temperature control fluid are forced out of the reservoir and through an outlet. This combination of gas and temperature control fluid vapor is routed to a heat exchanger which condenses the vapor to produce a second portion of recovered temperature control fluid. The gas and condensed second portion of the recovered temperature control fluid are routed to a separator which separates the gas and the condensed portion of temperature control fluid. A fluid line routes the condensed second portion of the recovered temperature control fluid from the separator back to the reservoir.

Hence, in accordance with the invention, a first portion of recovered temperature control fluid is routed from the chuck directly to the reservoir. Any vapor in the reservoir is removed from the reservoir and condensed, separated from the gas, and then returned back to the reservoir as condensed recovered temperature control fluid.

These features of the invention are set forth in the amended claims. Specifically, the amended claims set forth the reservoir, the heat exchanger receiving displaced gas and vapor from the reservoir and condensing the vapor to produce condensed recovered temperature control fluid, the separator separating the condensed temperature control fluid from the gas, and returning the condensed temperature control fluid to the reservoir. These features are neither taught nor suggested by any of the cited prior art references, taken alone or in combination.

Regarding WO 00/74117, purging of a heat transfer fluid to a cold fluid source is

disclosed. Regarding Cowans, heat transfer fluid is purged from a tool using gas. However, neither of the references teaches or suggests the details of the applicants' invention now set forth in the amended claims. Accordingly, it is believed that the claims are allowable over both of the references, and reconsideration of the rejections of claims 1 and 9 under 35 U.S.C. § 102(b) based on WO 00/74117 or Cowans is respectfully requested.

Sherwood is cited as teaching specific coolants in refrigeration loops. Sherwood does not provide any teaching or suggestion of the specific features of the invention set forth in the amended claims. Therefore, there is no combination of Sherwood with the art cited in connection with the rejections of claims 1 and 9 which would result in teaching or suggesting the claimed invention. Accordingly, reconsideration of the rejections of claims 2, 3, 10 and 11 under 35 U.S.C. § 103(a) as being unpatentable over the prior art as applied to claims 1 and 9 and further in view of Sherwood is respectfully requested.

JP 2000-183,142 is cited as disclosing the use of air as a purge gas. However, the cited Japanese reference fails to teach or suggest the specific details of the invention now set forth in the applicants' claims. Accordingly, there is no combination of the Japanese reference with the prior art applied to claims 1 and 9 which would result in teaching or suggesting the invention set forth in the claims. Accordingly, reconsideration of the rejections of claims 4 and 12 under 35 U.S.C. § 103(a) based on the prior art applied to claims 1 and 9 and further in view of JP 2000-183,142 is respectfully requested.

Fraser and Anderson are cited as teaching the desirability and need for recovering coolants. However, neither reference teaches or suggests the specific details of temperature control fluid recovery claimed by the applicants in the amended claims. Specifically, neither reference teaches or suggests using a gas to force a first portion of recovered temperature control fluid to a reservoir and then routing displaced gas and vapor to a condenser and separator to return a second portion of the recovered temperature control fluid condensed from the vapor to the reservoir.

Neither Fraser or Anderson, when combined with the art applied to claims 1 and 9, results in teaching or suggesting the invention set forth in the amended claims. Accordingly, it is believed that the claims are allowable over the combination of Fraser and/or Anderson with the


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art applied to claims 1 and 9. Accordingly, reconsideration of the rejections of claims 5-8 and 13-16 under 35 U.S.C. § 103(a) based on the prior art applied to claims 1 and 9 and further in view of Fraser and Anderson is respectfully requested.

In view of the amendments to the claims and the foregoing remarks, it is believed that all claims pending in the application (claims 1-4, 8-12 and 16) are in condition for allowance, and such allowance is respectfully solicited. If a telephone conference will expedite prosecution of the application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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